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PATENT

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Alyn R. Holt et al. : Art Unit: 2829  
Serial No.: 09/646,072 : Examiner: P. H. Patel  
Filed: December 7, 2000 :  
For: TEST HEAD MANIPULATOR :

#10  
Election  
of Amdt B

RESPONSE TO RESTRICTION REQUIREMENT AND AMENDMENT

Assistant Commissioner for Patents  
Washington, DC 20231

SIR:

This is in response to the Restriction Requirement stated in the  
Office Letter dated February 12, 2002.

The Examiner requires that the claims of either Group I, Group II or  
Group III be elected for prosecution. Applicants elect to prosecute Group I (claims  
1-29, 43 and 44, drawn to system for rotating the first vertical axis). This election  
of claims is made without traverse.

Please cancel non-elected claims 30-39 and 40-42.

Respectfully Submitted,

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Attorney for Applicants

Dated: February 26, 2002  
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The Assistant Commissioner for Patents  
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IN THE EUROPEAN PATENT OFFICE



PCT/US00/00704      12 JAN 2000 (12.01.00)      13 JAN 1999 (13.01.99)  
Internat'l Appl. No.      Internat'l Filing Date      Priority Claimed  
Title of Invention:      TEST HEAD MANIPULATOR  
Applicant:      INTEST IP CORP.

European Patent Office  
Attn: Examiner S. Fritz  
Erhardtstrasse 27  
D-80331 Munich  
GERMANY

AMENDMENT UNDER ARTICLE 34

Dear Sirs:

Enclosed for filing in the above-identified PCT International Application, under Article 34, are replacement sheets 30 through 35 and new sheet 35/1 for original sheets numbered 30 through 35 of the original International Application. Applicant makes the following statements concerning the relationship of the claims, as set forth on the enclosed replacement and new sheets, and the claims as originally filed.

Replacement Sheet 30:      Claim 12 has been amended. Claims 8-11, 13, and 14 remain unchanged.  
Replacement Sheet 31:      Claim 21 has been amended. Claims 15-20 remain unchanged.  
Replacement Sheet 32:      Claims 24-28 have been amended. Claims 22, 23, 29 and 30 remain unchanged.  
Replacement Sheet 33:      Claims 31-40 remain unchanged.  
Replacement Sheet 34:      Claims 41-44 remain unchanged.  
Replacement Sheet 35:      Claims 45-49 have been added.  
New Sheet 35/1:      Claims 50-53 have been added.

No new matter has been added by the amendment of, or additions to, the claims.

Respectfully submitted,

RATNER & PRESTIA

Lawrence E. Ashery  
Attorney for Applicant

Date: February 15, 2001

Enclosures: Replacement sheets: 30-35  
New sheet: 35/1

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has been ordered.*

1           8.     A system for positioning a load according to claim 1, wherein said  
2 rotation unit includes an in-out plate which moves said load horizontally along a second  
3 horizontal axis which intersects said first horizontal axis and which is orthogonal to said  
4 first vertical axis.

1           9.     A system for positioning a load according to claim 4, wherein said  
2 cables exit a test cabinet before being received for support by said cable support, and  
3 wherein said load is an electronic test head.

1           10.    A system for positioning a load according to claim 6, wherein said  
2 rotation unit includes a plurality of indexing members for indexing rotation of said swing  
3 plate about said second vertical axis.

1           11.    A system for positioning a load according to claim 4, wherein said  
2 cable support telescopes.

1           12.    A system for positioning a load, said load coupled to a cable, said  
2 system comprising:

3               a column which defines a first vertical axis;

4               a cable support which moves along a third vertical axis and which supports a  
5 cable coupled to said load; and

6               an arm unit which moves along said first vertical axis and which supports  
7 said load;

8               said column positionable so that it is closer to said load than said third  
9 vertical axis is to said load;

10              said load positionable by said arm unit so that said cable intersects said  
11 second vertical axis and said cable is situated to a side of said column.

1           13.    A system for positioning a load according to claim 11, further  
2 comprising a rotation unit for rotating said first vertical axis about a second vertical axis  
3 spaced apart from the first vertical axis.

1           14.    A system for positioning a load according to claim 11, wherein said  
2 cable support moves along said third vertical axis at one end thereof and said cable extends  
3 away from said one end and towards said load.

1           15.    A system for positioning a load according to claim 13, further  
2           comprising a base to which said arm unit is coupled, said base including a bottom plate,  
3           and a swing plate which is coupled to said arm unit and which rotates relative to said  
4           bottom plate about said first vertical axis in order to rotate said test head about said first  
5           vertical axis.

1           16.    A system for positioning a load according to claim 13, wherein said  
2           base includes a side to side plate which moves said test head horizontally along a first  
3           horizontal axis orthogonal to said first vertical axis.

1           17.    A system for positioning a load according to claim 13, wherein said  
2           base includes an in-out plate which moves said test head horizontally along a second  
3           horizontal axis which intersects said first horizontal axis and which is orthogonal to said  
4           first vertical axis.

1           18.    A system for positioning a load according to claim 11, wherein said  
2           cables exit a test cabinet before being received for support by said support unit, and  
3           wherein said load is an electronic test head.

1           19.    A system for positioning a load according to claim 15, wherein said  
2           base includes a plurality of indexing members for indexing rotation of said swing plate  
3           about said first vertical axis.

1           20.    A system for positioning a load according to claim 11, wherein said  
2           cable support telescopes.

1           21.    A system for positioning a load, comprising:

2           an arm unit which supports said load and which moves along a vertical  
3           column which defines a first vertical axis;

4           a rotation member for rotating said first vertical axis about a second vertical  
5           axis spaced apart from said first vertical axis;

6           a cable support which moves along a third vertical axis and which supports a  
7           cable coupled to said load; and

8           a further rotation member which provides rotation of said load about a  
9           horizontal axis, wherein vertical motion of said cable is preventable while said load is  
10          rotating about said horizontal axis.

1           22.    A system for positioning a load according to claim 21, wherein said  
2           arm unit moves upward and downward along said column.

1           23.    A system for positioning a load according to claim 21, wherein said  
2           cable support moves along said third vertical axis at one end thereof and said cable extends  
3           away from said one end and towards said load.

1           24.    A system for positioning a load according to claim 21, wherein said  
2           rotation member includes a bottom plate, and a swing plate which is coupled to said arm  
3           unit and which rotates relative to said bottom plate about said second vertical axis in order  
4           to rotate said load about said second vertical axis.

1           25.    A system for positioning a load according to claim 21, wherein said  
2           rotation member includes a side to side plate which moves said load horizontally along a  
3           first horizontal axis orthogonal to said first vertical axis.

1           26.    A system for positioning a load according to claim 21, wherein said  
2           rotation member includes an in-out plate which moves said load horizontally along a second  
3           horizontal axis which intersects said first horizontal axis and which is orthogonal to said  
4           first vertical axis.

1           27.    A system for positioning a load according to claim 23, wherein said  
2           cable exits a test cabinet before being received for support by said cable support, and  
3           wherein said load is an electronic test head.

1           28.    A system for positioning a load according to claim 25, wherein said  
2           rotation member includes a plurality of indexing members for indexing rotation of said  
3           swing plate about said second vertical axis.

1           29.    A system for positioning a load according to claim 21, wherein said  
2           cable support telescopes.

1           30.    A positioner for moving a test head into docking position with a  
2           device handler, said positioner comprising:

3                    an arm unit portion for moving said test head along or about at least one  
4                    axis; and

5                    a motor drive having a driving portion for selectively driving said arm unit  
6                    portion so that said test head moves along or about said at least one axis, said driving

7 portion physically movable to disengage said driving portion so that rotation of said driving  
8 portion does not effect movement of said arm unit portion along or about said at least one  
9 axis.

1 31. A system for positioning a load, comprising:  
2 an arm unit for moving said load along or about at least on axis;  
3 a motor drive having a driving portion for selectively driving said arm unit  
4 portion so that said load moves along or about said at least one axis, said driving portion  
5 physically disengageable so that free motion of said load along or about said axis is  
6 possible when said motor drive is not in use.

1 32. A system for positioning a load according to claim 31, wherein said  
2 motor drive provides constant torque when moving said load.

1 33. A system for positioning a load according to claim 32, wherein said  
2 constant torque is controlled to a value sufficient to move said load.

1 34. A system for positioning a load according to claim 31, wherein said  
2 motor drive comprises an electric motor, a reduction gear train, and an electromagnetic  
3 clutch coupled to the movable portion of the system via a pulley and belt.

1 35. A system according to claim 34, wherein said clutch is a torque  
2 limiting slip clutch.

1 36. A system according to claim 33, wherein said motor is a dc motor,  
2 and said constant torque is controlled by controlling the current supplied to said dc motor.

1 37. A system for positioning a load according to claim 31, wherein said  
2 motor drive comprises an electric motor, a reduction gear train, and an electromagnetic  
3 clutch coupled to the movable portion of the system via a friction drive roller.

1 38. A system for positioning a load according to claim 31, wherein said  
2 free motion occurs along said at least one axis which is a vertical axis.

1 39. A system for positioning a load according to claim 31, wherein said  
2 free motion occurs along said at least one axis which is a horizontal axis.

1 40. A safety lock system for preventing unlocking of a balanced loaded  
2 unit which includes a load mounted on and locked to a vertical guide rail when said loaded  
3 unit becomes unbalanced, said safety lock system comprising:

4 a plurality of calipers situated on opposite sides of said guide rail for  
5 simultaneously applying pressure on opposite sides of said rail;

6 a lock block for coupling said load to at least one of said calipers for  
7 movement of said load along said guide rail;

8 a rotatable handle coupled to said calipers by means of a shaft for  
9 increasing pressure by said calipers of said guide rail upon rotation of said handle in one  
10 direction in order to lock said lock block against vertical movement along said shaft and for  
11 decreasing pressure by said calipers of said guide rail from said guide rail upon rotation of  
12 said handle in an opposite direction; and

13 a safety lock coupled to said loaded unit and moveable with said  
14 loaded unit for preventing rotation of said handle upon a preselected movement of said  
15 loaded unit relative to said lock block.

1 41. A safety lock system according to claim 40, wherein a first axis  
2 extends from said guide rail to said load; and

3 said shaft is orthogonal to said first axis and said guide rail.

1 42. A safety lock system according to claim 4, wherein said calipers  
2 exerts pressure against said rail without completely surrounding said rail.

1 43. A system for positioning a load, said load coupled to a cable, said  
2 system comprising:

3 a column which defines a first vertical axis;

4 an arm unit which supports said load and which moves along said first  
5 vertical axis;

6 a rotation unit for rotating said first vertical axis about a second vertical axis  
7 spaced apart from the first vertical axis;

8 said second vertical axis situated not more than three widths of said cable  
9 away from said test cabinet;

10 said load positionable by said arm unit so that said cable intersects said second vertical axis  
11 and said cable is situated to a side of said column.

1 44. A system for positioning a load, said load coupled to a cable, said  
2 system comprising:

3 a column which defines a first vertical axis;  
4 an arm unit which supports said load and which moves along said first  
5 vertical axis;  
6 a rotation unit for rotating said first vertical axis about a second vertical axis  
7 spaced apart from the first vertical axis;  
8 said cable situated along an axis which intersects a center of gravity of said  
9 load;  
10 said load positionable by said arm unit so that said cable intersects said  
11 second vertical axis and said cable is situated to a side of said column.

1 45. A system for positioning a load, comprising:  
2 an arm unit which supports said load, said arm unit for moving along a  
3 vertical column which defines a first vertical axis, said arm unit extending from said  
4 vertical column along a horizontal axis;  
5 a rotation member for rotating said first vertical axis about a second vertical  
6 axis spaced apart from and located to one side of said horizontal axis; and  
7 a cable support which moves along a third vertical axis and which supports a  
8 cable coupled to said load.

1 46. A system for positioning a load according to claim 45, wherein said  
2 arm unit moves upward and downward along said column.

1 47. A system for positioning a load according to claim 45, wherein said  
2 cable support moves along said third vertical axis at one end thereof and said cable extends  
3 away from said one end and towards said load.

1 48. A system for positioning a load according to claim 45, wherein said  
2 rotation member includes a bottom plate, and a swing plate which is coupled to said arm  
3 unit and which rotates relative to said bottom plate about said second vertical axis in order  
4 to rotate said load about said second vertical axis.

1 49. A system for positioning a load according to claim 45, wherein said  
2 rotation member includes a side to side plate which moves said load horizontally along a  
3 first horizontal axis orthogonal to said first vertical axis.

1                   50.    A system for positioning a load according to claim 45, wherein said  
2 rotation member includes an in-out plate which moves said load horizontally along a second  
3 horizontal axis which intersects said first horizontal axis and which is orthogonal to said  
4 first vertical axis.

1                   51.    A system for positioning a load according to claim 45, wherein said  
2 cable exits a test cabinet before being received for support by said cable support, and  
3 wherein said load is an electronic test head.

1                   52.    A system for positioning a load according to claim 45, wherein said  
2 rotation member includes a plurality of indexing members for indexing rotation of said  
3 swing plate about said second vertical axis.

1                   53.    A system for positioning a load according to claim 45, wherein said  
2 cable support telescopes.